Space Weather Forecast

Issued on Tuesday, 09 August 2022 at 01:24 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Further Minor Geomagnetic Storms likely through midweek.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with only background class flares. Some minor spots have waxed and waned, and now there are 5 sunspots on the visible disk, all of which are simple. The main activity on the disc in the past 2 days has been the movement and potential disappearance of up to four filaments, though coronagraph imagery suggests that no filaments have lifted off in the direction of Earth.

Solar Wind / Geomagnetic Activity: Earth is currently under the influence of the fast wind from a coronal hole. The solar wind was elevated. The Interplanetary Magnetic Field was Moderate initially, then became weak from around 0900 UTC. The north-south component meanwhile fluctuated between moderately positive and negative before gradually becoming weak also. The net result of the above solar wind measures was a period of heightened geomagnetic activity initially, with overall G1/minor storm periods, before easing to Unsettled to Active by 0900 UTC.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low or very low solar activity is forecast, with a decreasing Slight Chance of an isolated Moderate-class flare.

Solar Wind / Geomagnetic Activity: No CMEs feature in the current forecast. Solar winds are forecast to be elevated - perhaps peaking at strong - due to a succession of high speed streams of three coronal holes. Transition between the first two coronal holes has either already occurred or will happen early Day 1 (09 Aug).

Geomagnetic activity is now thought Likely to carry a more prolonged risk of G1 through midweek as a result of the succession of coronal holes. Solar winds may remain slightly elevated later this working week, however the threat of further G1 intervals should recede as the features mature, and Unsettled activity is perhaps more likely by this time.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	60	30	10	1
Strong	G3	No	10	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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